

Claims

1. Method for actuating an accumulator catalyst for nitrogen dioxide on an internal combustion engine for a vehicle, in particular a car,

with a first operating range as the lean operating range in which the internal combustion engine is operated with a lean mixture and in which the nitrogen oxides contained in the exhaust gas flow are stored in a nitrogen oxide storage catalyst, to discharge the nitrogen oxide storage catalyst at a predeterminable switching instant when a predetermined switching condition is satisfied by means of the engine control device switching taking place from the lean operating range to the rich operating range.

characterized in that

to determine the instant of optimized switching from the lean operating range to the rich operating range for discharge of the nitrogen oxide storage catalyst, a discharge threshold is established as a function of a modeled nitrogen oxide raw emission value in the exhaust gas flow and as a function of the detected current nitrogen oxide tail pipe emission value such

that discharge of the nitrogen oxide storage catalyst is triggered if the emission values which are brought into a relation to one another indicate that the discharge threshold has been reached or exceeded.

2. The process as claimed in claim 1, wherein the discharge of the nitrogen oxide storage catalyst is triggered if the current nitrogen oxide tail pipe emission value detected at the instant of switching reaches or exceeds a predeterminable percentage value relative to the modeled nitrogen oxide raw emission value at the instant of switching.

3. The process as claimed in claim 2, wherein to determine the current nitrogen oxide tail pipe emission value of the nitrogen oxide mass flow downstream of the nitrogen oxide storage catalyst is integrated over the current lean phase,

wherein the modeled nitrogen oxide raw emission value is the integral of the modeled nitrogen oxide raw mass flow upstream of the nitrogen oxide storage catalyst over the same current lean phase,

wherein a discharge is carried out when the following switching condition is met at the switching instant:

$$\left( \frac{\text{Integral of the currently detected nitrogen oxide tail pipe emission values}}{\text{Integral of the modeled nitrogen oxide raw emission values}} \right) \geq \text{predeterminable percentage.}$$

the percentage value being predetermined as a function of the exhaust gas limit value, and the product of the predetermined percentage value and the integral value of the modeled nitrogen oxide raw emission values defining the switching threshold.

4. The process as claimed in claim 3, wherein the percentage value is at least 10%, preferably at least 5%.
5. The process as claimed in one of claims 1 to 4, wherein the nitrogen oxide tail pipe emission value is detected preferably by a sensor device, preferably a nitrogen oxide sensor, which is located downstream of the nitrogen oxide storage catalyst viewed in the exhaust gas flow direction.